

## FORAGE SUITABILITY GROUP

### Not Suited

**FSG No.:** G053CY000ND

**Major Land Resource Area:** 53C - Southern Dark Brown Glaciated Plains

### Physiographic Features

The soils in this group are in various landscape positions.

	<u>Minimum</u>	<u>Maximum</u>
<b>Elevation (feet):</b>	1300	2300
<b>Slope (percent):</b>	0	40
<b>Flooding:</b>		
<b>Frequency:</b>	None	Frequent
<b>Duration:</b>	None	Very Long
<b>Ponding:</b>		
<b>Depth (inches):</b>	0	18
<b>Frequency:</b>	None	Frequent
<b>Duration:</b>	None	Very Long
<b>Runoff Class:</b>	Negligible	Very high

### Climatic Features

This group occurs in a mid-continental climate characterized by wide seasonal temperature and precipitation fluctuations and extremes.

Annual precipitation varies widely from year-to-year in MLRA 53C. Average annual precipitation for all climate stations listed below is about 20 inches. About 75 percent of that occurs during the months of April through September. On average, there are about 28 days with greater than .1 inches of precipitation during the same timeframe. Annual precipitation and temperature increase from the north to the south in the MLRA.

Average annual snowfall ranges from 23 inches at Pickstown to 46 inches at Harrold. Snow cover at depths greater than 1 inch range from 38 days at Gettysburg to 65 days at Harrold.

Average July temperatures are about 75°F and average January temperatures are about 16°F. Recorded temperature extremes in the MLRA during the years 1961 to 1990 are a low of -40 and a high of 113 both recorded at Harrold. The MLRA lies mostly in USDA Plant Hardiness Zones 4a and 4b, with a small area of warmer 5a along the Missouri River.

At Huron, the closest station with records, the average annual wind speeds are about 11.5 mph. The highest wind speeds occur during March through May. It is cloudy about 154 days a year. Average morning relative humidity in June is about 86 percent and average afternoon humidity is 59 percent.

The climate data listed in the tables below represent high and low ranges and averages for the climate stations and dates listed. For additional climate data access, the National Water and Climate Center at <http://www.wcc.nrcs.usda.gov>.

	<b>From</b>	<b>To</b>
<b>Freeze-free period (28 deg)(days):</b> (9 years in 10 at least)	122	156
<b>Last Killing Freeze in Spring (28 deg):</b> (1 year in 10 later than)	May 24	May 07
<b>Last Frost in Spring (32 deg):</b> (1 year in 10 later than)	Jun 14	May 17
<b>First Frost in Fall (32 deg):</b> (1 year in 10 earlier than)	Aug 27	Sep 23
<b>First Killing Freeze in Fall (28 deg):</b> (1 year in 10 earlier than)	Sep 16	Oct 04
<b>Length of Growing Season (32 deg)(days):</b> (9 years in 10 at least)	85	136

	<b>From</b>	<b>To</b>
<b>Growing Degree Days (40 deg):</b>	4388	5543
<b>Growing Degree Days (50 deg):</b>	2532	3338
<b>Annual Minimum Temperature:</b>	-30	-15
<b>Mean annual precipitation (inches):</b>	17	25

### Monthly precipitation (inches) and temperature (F):

<b>2 years in 10:</b>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
<b>Precip. Less Than</b>	0.10	0.13	0.55	1.00	1.21	1.40	1.26	1.02	0.46	0.47	0.15	0.19
<b>Precip. More Than</b>	0.62	0.83	2.36	3.48	4.20	5.55	3.95	3.29	3.60	2.43	1.49	0.94
<b>Monthly Average:</b>	0.40	0.55	1.38	2.23	2.88	3.25	2.74	2.21	1.78	1.37	0.70	0.55
<b>Temp. Min.</b>	1.3	7.5	18.2	31.1	42.2	52.3	58.2	55.5	44.9	32.8	18.9	6.1
<b>Temp. Max.</b>	30.1	35.8	47.6	63.8	75.1	85.3	91.1	88.7	78.0	65.5	47.0	32.9
<b>Temp. Avg.</b>	15.7	21.9	32.8	47.3	58.6	68.5	75.1	72.9	62.2	49.8	33.5	19.6

<u>Climate Station</u>	<u>Location</u>	<u>From</u>	<u>To</u>
SD3832	Highmore, SD	1961	1990
SD7992	Stephan, SD	1961	1990
SD3608	Harrold, SD	1963	1990
SD3294	Gettysburg, SD	1961	1990
SD0043	Academy, SD	1961	1990
SD6292	Onida, SD	1961	1990
SD6574	Pickstown, SD	1961	1990
SD8767	Wagner, SD	1961	1990

### Soil Interpretations

The soils in this group possess one or more physical or chemical properties that make their economic use for forage production difficult or impossible.

<b>Drainage Class:</b>	Excessively drained	To	Very poorly drained
<b>Permeability Class:</b>	Rapid	To	Very slow
<b>(0 - 40 inches)</b>			
<b>Frost Action Class:</b>	Low	To	High

	<u>Minimum</u>	<u>Maximum</u>
<b>Depth:</b>	5	
<b>Surface Fragments &gt;3" (% Cover):</b>	0	
<b>Organic Matter (percent):</b>	0.0	5.0
<b>(surface layer)</b>		
<b>Electrical Conductivity (mmhos/cm):</b>	0	32
<b>(0 - 24 inches)</b>		
<b>Sodium Absorption Ratio:</b>	0	40
<b>(0 - 12 inches)</b>		
<b>Soil Reaction (1:1) Water (pH):</b>	5.6	9
<b>(0 - 12 inches)</b>		
<b>Available Water Capacity (inches):</b>	1	12
<b>(0 - 60 inches)</b>		
<b>Calcium Carbonate Equivalent (percent):</b>	0	70
<b>(0 - 12 inches)</b>		

### Adapted Species List

Unless the severe chemical and/or physical restrictions of these soil have been corrected no forage species can be expected to be economically produced on them.

### Soil Limitations

These soils have severe limitations that make their use for forage production impractical or impossible. They are too steep, shallow, wet, stony, or possess unfavorable chemical properties.

### **Management Interpretations**

If the severe restrictions have been reduced or removed the soils should be managed the same as the group that most closely resembles them without the restrictions. For instance, if a soil has been placed in this group because of stoniness and the stones have been removed, it should be managed under the same group that the non-stony phase is managed under.

### **Inventory Data References**

Agriculture Handbook 296-Land Resource Regions and Major Land Resource Areas  
Natural Resources Conservation Service (NRCS) National Water and Climate Center data  
National Soil Survey Information System (NASIS) for soil surveys in South Dakota counties in MLRA 53C  
NRCS South Dakota Technical Guide  
NRCS National Range and Pasture Handbook  
Various Agricultural Research Service, Cooperative Extension Service, and NRCS research trials for plant adaptation and production

### **State Correlation**

This site has been correlated with the following states: South Dakota

### **Forage Suitability Group Approval**

**Original Author:** Tim Nordquist

**Original Date:**

**Approval by:** Dave Schmidt

**Approval Date:** 2/5/03